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July 30, 2002

TO: Internal File

THRU: Wayne Western, Senior Reclamation Engineer and Team Lead WHW

FROM: Priscilla Burton, Soils Reclamation Specialist, III PB

RE: 4th East Portal Facility at the Emery Deep Mine, Consolidation Coal Company, Emery Deep Mine, C/015/015-AM02B

SUMMARY

The 4th East Portal entries are contemplated in the currently approved MRP, Section IV.A.2 and Plate IV-3. The proposed site of the 4th East Portal development is in Section 27, T. 22 S. R. 6 E. Salt Lake Meridian. The 4th East Portal entry was envisioned as a ramp down to the top of the I & J seams (70 feet below the surface) with three portal entries, a 73,000 cu yd excavated material pile, topsoil pile and an undisturbed diversion ditch.

With this submittal, the Permittee has modified plans for portal development and surface facilities layout to include an air shaft, a 2,600 ton surge pile, crusher, coal handling facilities, 10,000 ton processed coal stockpile, a 100 ton rock dust bin, water tank, storage yard, two retention ponds and a sediment pond. The proposed excavated material pile has doubled in size, and is now projected to be 132,000 cu yds.

Originally, the plans were to strip topsoil from the entire 15 acre disturbance, but during discussions held at the Division on April 22, 2002, the Division recommended that topsoil be stored in-place beneath the inert, pile of excavated material, to limit environmental damage both to the immediate removal site and to a subsequent storage site for the topsoil. Topsoil will be salvaged from eight acres. Approximately 12,000 cubic yards of topsoil will be stored in a topsoil pile.

TECHNICAL ANAYLSIS:

GENERAL CONTENTS

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

The application indicates on page 15, Chapter III that there will be one proposed portal at the Emery Mine. This is probably a reference to the 4th East portal that is actually three entries. The narrative should indicate three portal entries.

The application refers to near future disturbance at the 4th E. Portal on page IV-16. This reference as well as Table III-2 must be corrected to delineate actual disturbance.

Findings:

The information provided does not meet the minimum requirements for Permit Application Format and Contents. The Permittee must submit the following, prior to approval, in accordance with:

R645-301-121.200, 1) The application should indicate on page III-15, that there will be three entries at the 4th East Portal rather than one proposed portal at the Emery Mine. 2) The application refers to near future disturbance at the 4 E. Portal on page IV-16. This reference as well as Table III-2 must be corrected to delineate actual disturbance.

REPORTING OF TECHNICAL DATA

Regulatory Reference: 30 CFR 777.13; R645-301-130.

Analysis:

The qualifications and ARCPACS certification of the soil scientist conducting the on-site soil thickness survey should be disclosed in the MRP.

Findings:

The information provided does not meet the minimum requirements for Reporting of Technical Data. The Permittee must submit the following, prior to approval, in accordance with:

R645-301-132, The Permittee must include with the submittal a statement of the qualifications and ARCPACS certification of the Mr. Jim Nyenhuis, the certified soil scientist who conducted the recent soil survey.

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.18; R645-301-724.

Analysis:

Climatological information is provided in Chapter X Part B of the MRP. Precipitation records have been kept at the Emery weather station since 1901. The MRP summarizes the data from 1901 to 1978 as follows:

- 7.55 inches of precipitation annually
- 2.97 inches during "winter," October through March
- 4.58 inches during "summer," April through September.
- 75% of the precipitation enters the soil
- 66% of the soil moisture is lost due to evapotranspiration.

The wettest months of the year are August and September.

Findings:

The information provided does not meet the minimum requirements for Reporting of Technical Data. The Permittee must submit the following, prior to approval, in accordance with:

R645-301-724, The Permittee must update Chapter X, Part B with current climatological information from the town of Emery weather station.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

James P. Walsh & Associates, Inc. of Boulder Colorado conducted a soil survey of the 22.5 acre proposed 4th East Portal site in March 1981 by (MRP Section VII.A.1). The soils map is Plate VII-1. Soils mapped by the survey were the Castle Valley extremely stony very fine sandy loam, Persayo-Chipeta Complex, Killpack silty clay loam, Ferron silt loam and Rock Land.

The submittal refers to Appendix VII-3, received May 17, 2002 in response to Division Order dated May 4, 2002. Appendix VII-3 is a May 2002 report prepared by Mt. Nebo Scientific, Inc, entitled, "Soil Resources Report at the 4th East Portal Area." This report summarizes the information in the plan for the 4th East portal and suggests that the rock land and Persayo-Chipeta complex dominate acreage proposed for disturbance. The report states that within the 22 acre disturbed area, 15 acres are proposed for disturbance, and approximately 13,000 cubic yards of topsoil could be salvaged.

The report was followed by a site visit on May 31, 2002 by a Jim Nyenhuis (ARCPACS certification #2753), a certified soil scientist. Mr. Nyenhuis contacted the Division following the site visit with the following information, 38 backhoe pits were dug on the proposed 15 acres of disturbance. As a result, the area mapped as rock outcrop (RY) was reduced and the area covered by Castle Valley soils was enlarged and two inclusions were outlined: Montwel and Begay soils. Castle Valley series has been renamed Hideout by the Natural Resources Conservation Service (NRCS). Contrary to the suggestion in the 1981 soil survey, there was no evidence of excessive sodium. Mr. Nyenhuis made the recommendation that all soil could be salvaged down to the sandstone in sequence from the northwest to the southeast of the proposed disturbed area.

The following soil series were mapped by Mr. Nyenhuis:

Hideout Soil Series = Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents;
Montwel Soil Series = Fine-loamy, mixed, superactive, calcareous, mesic Typic Torriorthents;
Begay Soil Series = Coarse-loamy, mixed, superactive, mesic Ustic Haplocambids;
Persayo Soil Series = Loamy, mixed, calcareous, mesic, shallow Typic Torriorthents;
Chipeta Soil Series = Clayey, mixed, active, calcareous, mesic, shallow Typic Torriorthents.

A summary of Mr. Nyenhuis' May 31, 2002 site visit and recommendations must be submitted to complete the 4th East Portal Soil Survey.

Findings:

The information provided does not meet the minimum requirements for Environmental Resource Soils. The Permittee must submit the following, prior to approval, in accordance with:

R645-301-222, The Permittee must include in Appendix VII-3 the field notes, discussion, conclusions and soils map resulting from Jim Nyenhuis' site visit on May 31, 2002.

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

Analysis:

Alluvial valley floor determination

Alluvial Valley Floor information is discussed in Chapter XI of the MRP and illustrated on Plate 2 Alluvial Deposits and Soils Map of Appendix XI-1 and on Plate XI Potential Alluvial Valley Floor Along Upper Quitchupah Creek.

The following quote comes from the February 25, 1985 TA for the Emery Deep Mine:

In determining the potential for Alluvial Valley floors (AVF's) on and adjacent to Consolidation Coal Company's Emery Deep Mine, the regulatory authority evaluated areas along Quitchupah Creek and Christiansen Wash in sections 19 – 22, 28 – 30, 32 and 33 of T22S, R6E Salt Lake Meridian.

Section 510(b)(5) of the Surface Mining Control and Reclamation Act (SMCRA) provides specific protection for AVF's. A proviso in Section 510(b)(5) of SMCRA exempts from the requirements of Section 510(b)(5) those surface coal mining operations which in a year preceeding the enactment of the Act (August 3, 1977) produced coal in commercial quantities and were located within or adjacent to AVF's or had specific permit approval from the State regulatory authority to conduct surface coal mining operations on AVF's.

Consol meets the requirements provided in this proviso for land sections 28, 29, 32, and 33 since a state permit was in affect and they were mining commercial quantities of coal prior to August 3, 1976.

Consol will be required to provide mitigating measures to areas within the exempted area where subsidence from mining operation occurs.....

The regulatory authority determined that AVF's do not exist along Christiansen Wash. Information provided by the applicant points out that the flow in Christiansen Wash is produced mainly by flood irrigation return from fields that are initially supplied by Muddy Creek, a stream in an adjacent drainage basin.....

The regulatory authority has determined that AVF's exist in sections 19 and 30 of the 5 year permit area which must be protected according to the established regulations

governing AVF's. The applicant has committed to protecting that area known as Jack Lewis field shown as area III in Figure 1 (March 2, 1984 submittal) and has supplied the necessary information for its protection as an AVF. The regulatory authority has determined that the hatched area outlined in the accompanying map must be protected as AVF. Historically irrigation water has been diverted from Quitchupah Creek and there exists the potential that area II as well as other areas outlined in the accompanying map could be flood irrigated and subirrigated with waters from Quitchupah Creek. Since no mining will occur in Area II, no adverse impacts should effect the delineated alluvial valley floor.

Area III and area II referred to in the above quotation, are outlined on Plate XI-1 of the MRP. Area I is actively flood irrigated and lies in the "grandfathered" zone, above existing workings in Section 29. Area II falls in Section 30. Area III is active flood irrigated Quitchupah Creek water in sections 19 and 30.

The 4th East Portals lie in the NE1/4 of Section 27, T. 22 S. R. 6 E. Salt Lake Meridian, on land that drains to Christiansen Wash.

Findings:

The Division determined in 1985 that an AVF exists in Sections 19 and 30 T. 22 S. R. 6 E. Salt Lake Meridian. There is not an AVF in the NE1/4 of Section 27, T. 22 S. R. 6 E. Salt Lake Meridian, where the 4th East Portals will be developed.

PRIME FARMLAND

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

Analysis:

Plate 7-8 included with the 1988 Annual Report indicates areas of flood irrigated and specially managed agricultural land in Sections 8 - 11, 13 – 17, 19 – 23, and 28 – 32 of T. 22 S. R. 6 E. Salt Lake Meridian. Diversion structures shown on this map are on the western boundary of the permit area. Plate XI-1 indicates three areas of active flood irrigation within the southwest portion of the permit area. Plate VIII-1 confirms the prevalence of pastureland and hayland within the permit area.

The 1985 TA for the Emery Mine states:
The areas of prime farmland within the Detailed Mapping Area are shown on Plate 8-3.... The potential exists that prime farmland may be impacted by subsidence in the future (see subsidence section in this TA). Prime farmland that may be impacted is located in T. 22 S., R. 6 E.; Secs 20, 22, 29, 30 and 31. These areas were identified by matching areas of prime farmland to areas of present or future underground mining.

Plate IV-1 shows the mine progression underneath the irrigated pasture lands. The Permittee commits to notifying landowners six months prior to mining beneath their property (Chap V page 39). The notification will include information on measures to prevent, minimize or control subsidence. Mitigation is discussed in Chapter V page 41.

Appendix VII-3 (submitted May 17, 2002 in response to Division Order 02A), indicates that there are no prime farmlands or important farmlands at the site of the 4th East Portal Area development, Section 27, T. 22 S. R. 6 E. Salt Lake Meridian.

Findings:

The Division finds that there are prime farmlands within the permit area, but not within the area of 4th East Portal development, NE1/4 of Section 27, T. 22 S. R. 6 E. Salt Lake Meridian.

OPERATION PLAN

AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244.

Analysis:

The facility will include a 2,600 ton surge stockpile, a screening/crusher building, and a 10,000 ton processed coal stockpile along with associated conveyors. The facility will handle a capacity of approximately 2,000,000 tons of coal per year (page 17b, Chapter II).

Appendix X.C-2 contains the "'Notice of Intent of Modify Approval Order DAQE-117-95' Modification for 4 East Portal,'" submitted April 2002. Appendix A of the Notice of Intent contains the Department of Environmental Quality, Division of Air Quality Approval Order number DAQE –177-95, dated March 2, 1995.

The Notice of Intent (NOI) indicates that the Emery Mine is relocating the coal processing operations to the 4th East Portal. The NOI increases the handling capacity from 979,200 tons/yr to 1,300,000 tons/yr. The NOI application indicates under "General Information" that a permit to construct must be approved before any actual work is begun on the new facilities. The Permittee must include the Permit to Construct and revised Approval Order with the application.

The Notice of Intent indicates that Consol will conduct the Method 9 visible emission observations on the crusher, screen and transfer points within 180 days of initial start-up. **The Notice of Intent further indicates in Section 6.2 that "Consol will have access to a water truck to minimize fugitive dust emissions from the load-out facility, roadways, and any**

staging area associated with the coal processing facility. Water will be applied to surface areas if significant fugitive dust emissions are detected. Records of dust suppression application will be maintained."

The excavated material pile will cover 4.10 acres (see page VI.B.3-188a). The submittal should indicate measures other than application of water to be taken to establish wind erosion control on the excavated material pile.

Findings:

The information provided does not meet the minimum requirements for Air Pollution Control Plan. The Permittee must submit the following, prior to approval, in accordance with:

R645-301-420, The revised Division of Air Quality Approval Order and "Permit to Construct" must be included with the application.

R645-301-244.100, The submittal should indicate measures to be taken to establish wind erosion control on the excavated material pile.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Removal and Storage

Topsoil will be protected in-place beneath the topsoil storage pile and the excavated material storage pile (5.35 acres total, according to page VI.B.3-188a). The submittal indicates that "this practice deviates from the normal topsoil handling practice." The Division invoked R645-301-232.710 and allowed this practice based on the following information:

1. The Excavated material storage pile lies above rock land, Montwel and Castle Valley soils (now correlated to the Hideout Series). These are shallow soils over sandstone bedrock. Average depth to bedrock is twelve inches (page 9 Appendix VII-3). A typical profile of the Hideout Series is described by the NRCS (page C-5, App VII-3) as "A -- 0 – 2 inches; C--2 to 20 inches; R -- 10 inches."
2. The soils will be covered with excavated overburden only, no refuse from roof and floor will be deposited with the excavated material;
3. Minimal rainfall will limit any leaching of minerals from excavated material to native surface soils.
4. Cryptogams considered critical to the reclamation of the site would be buried with the in-place soils. Crushing the cryptogams in place seems preferable to removing them entirely from the site, especially since lichen spores would stay in

place ready to germinate upon re-exposure to light and moisture (Biological Soil Crusts: Ecology and Management. U.S.D.I. BLM Tech Ref 1730-2. 2001. Sec 4.3.4).

The topsoil remains underneath the excavated material stockpile, not within the excavation stockpile as reported on page 15 Chapter III. The native ground was to be left intact and demarcated with geotextile fabric or other method of visually delineating the topsoil. Field visits to the site on June 20, 2002 revealed procedures described on Page IV-7 of the submittal were not followed with regard to demarcating the in-place topsoil. Page IV-7 of the MRP must be updated with field modifications of demarcating the in-place topsoil.

The Permittee must ensure that excavated material placed on the topsoil does not fall into the category of underground development waste as defined by R645-100 (see deficiency written under R645-301-536). Storage of topsoil beneath the excavated material pile does not relieve the Permittee from the requirements to protect the topsoil from contaminants. To this end, the submittal describes analysis of the in-place topsoil, prior its use during reclamation (see discussion under Reclamation Plan Topsoil Subsoil).

Soil was removed from eight acres and stored as shown on as shown on Plate III-1. The storage pile lies on Persayo/Chipeta complex soils. The topsoil stockpile was expected to be 13,000 cubic yards according to the submittal, page II-17a. The submittal indicates on page VI.B.3-188a that the topsoil stockpile will cover 1.25 acres. Dimensions of the stockpile as shown on cross section E-E' of Plate IV-3b are 100' wide X 400' long X 16' high. The submittal indicates that the topsoil pile will be surveyed.

Seth McCourt, Mining Engineer, Emery Mine, recently surveyed the stockpile. A letter from Mr. McCourt to Priscilla Burton, dated July 9, 2002, confirms that the stockpile holds 12,958 cubic yards. Please update the submittal with the results of the survey including the dimensions of the topsoil pile.

Two pages of II-17a and II-17b were submitted: one with an April date and one with a May date. The Division reviewed the later date. Please remove from the final submittal the excess pages.

Protection of the stored topsoil is described on page IV-7. The submittal indicates that the topsoil pile will be seeded with the mix outlined in VII C. 3 of the MRP. There are two mixes listed on this page. The Permittee has communicated to the Division that the seed mix contained Russian Wild Rye, HighCrest Crested Wheatgrass, and Fourwing Saltbush, but the submittal must also clearly indicate which mix was used on the topsoil pile and which mix was used on the berms surrounding the pile. The submittal must also describe the length of time that passed between stockpiling and seeding and between seeding and any applications of water. The submittal should define the irrigation of the topsoil pile and berms (frequency and amount of water applied).

Findings:

The information provided does not meet the minimum requirements for Operations Topsoil Subsoil. The Permittee must submit the following, prior to approval, in accordance with:

R645-301-121.100, 1) The submittal must indicate that the topsoil is stored underneath the excavated material stockpile, not within the excavation stockpile as stated on page 15, Chapter III. 2) Two pages of 17a and 17b were submitted with different dates and figures on the pages. Please remove from the final submittal the excess pages. 3) Page IV-7 of the submittal must be updated with field modifications for in-place protection of topsoil that occurred on site during placement of the topsoil and excavated material. 4) The submittal must include an explanation on page IV-7 for deviating from the normal topsoil handling practice.

R645-301-231.400, 1) The submittal must indicate which seed mix was used on the topsoil pile and which mix was used on the berms surrounding the pile. The submittal must also describe the length of time that passed between stockpiling and seeding and between seeding and any applications of water. The submittal should define the irrigation of the topsoil pile and berms (frequency and amount of water applied). 2) The submittal should be updated with a drawing of the topsoil pile, indicating volumes surveyed in the pile (as per the MRP, page IV-8).

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Refuse piles

The proposal indicates on Chapter III page 12a that acid-toxic forming material (or refuse) will be disposed of in one of three locations:

1. the permanent underground development waste site; or
2. the abandoned underground mine workings; or
3. the coarse refuse disposal area.

A "proposed coarse refuse disposal area" is in the currently approved MRP and shown on Plate II-2. This coarse refuse disposal area is not located at the 4th East Portal breakout, but is located on the hilltop adjacent to the northwest coal stockpile at the main mine facility. However, Chap III page 9 indicates that this coarse refuse disposal area will not be constructed

until the Preparation Plant becomes a reality.

The Permittee must 1) provide an estimate of how much waste might be generated by the 4th East Portal operations and 2) determine how refuse generated at the 4th East Portal will be handled and 3) The submittal must specifically indicate that the excavated material pile will not be the disposal site for coal or underground development waste.

Excess spoil

During operations, there will be an excavated material storage pile that will hold approximately 132,000 cubic yards of material (page 71a, Chapter II) and cover 4.1 acres (Camp VI.B.3). This material will come from:

- the development of the airshaft (70 feet deep and 16' in diameter) in the southwest corner of the site (page 17c Chapter II);
- the ramp excavation down to the portal cuts and across the face of the three portals each 8 x 14 on 45 foot centers;
- the temporary diversion construction;
- construction of the surge stockpile and coal handling facility (cross section B-B' Plate IV-3);
- the sediment pond (IV-8).

The submittal must also state that the excavated material storage pile will not contain underground development waste as defined by R645-100. The Division imposes this requirement on the Permittee due to the fact that

1. There is a permitted disposal site for refuse within the permit area and
2. Topsoil being stored beneath the excavated material must be protected from contaminants.

Reclamation of the 4th East portal will require approximately 99,000 cubic yards as indicated on page IV-14 of the submittal. That leaves 33,000 cubic yards of excess spoil during reclamation to be graded over the surface.

Findings:

The information provided does not meet the minimum required for Operations Spoil and Waste Materials. The Permittee must submit the following, prior to approval, in accordance with:

R645-301-536, 1) The Permit Application must provide an estimate of the amount of coal mine waste to be generated by mining at the 4th East Portal. 2) The submittal must state that the excavated material storage pile will not be the repository for underground development waste as defined by R645-100. 3) The submittal must

state how the refuse generated by the 4th East Portal development and by operations will be handled (see similar deficiency under R645-301-528.320).

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Acid and toxic-forming materials

Drill Hole FC 702 provides an analysis above and below the I & J coal seams in the 4th East Portal location (page IV-2 through IV-6). This core indicates that the highest Electrical Conductivity and Sodium Adsorption Ratios are in the top ten feet of this material. Selenium and Boron are not a problem in the depths to be excavated. A layer of black sooty coal is encountered at approximately 34 feet. The band is about 6 inches thick and is low in pH (5.2) and has elevated copper (4.0 ppm) and iron content (821 ppm). This coal layer must be hauled to the refuse disposal site (see deficiency R645-301-536).

Findings:

The information provided meets the minimum required for Operations Hydrologic Information Acid and Toxic Forming Material.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

The demonstration test plot was constructed in 1984 and reworked in 1987 in an effort to determine successful revegetation techniques for use on subsoils derived from the Mancos Shale. The chemical characteristics of the soils in this plot are described with the Vegetation Data in the 1991 Annual Report. They are extremely sodic, with average values in the top six inches of 9.3 pH and 19.8 SAR. The variables tested in the plots were:

- topsoil and no topsoil treatments;
- irrigation and no irrigation treatments;
- mulch and no mulch treatments;
- furrows and no furrows; and
- mature versus containerized transplants.

The demonstration test plots were evaluated in 1989 and 1990 by Richard Denning and David Larson of Consolidation Coal Company. The results of the evaluation are included in the Annual Reports for 1988 and 1989. Mortality of transplants and containerized plants was high. At the end of the monitoring period, the 33% of the mature transplants survived and 10% of the containerized transplants were living. The most successful plots were those that received mulch and contained shallow depressions. Thus, the test plots emphasize that the most important variable is the availability of water. Water not only irrigates the plants, but also leaches the salts from the soil.

Findings:

The information provided in the application does not advance the Permittee's understanding of reclamation procedures for the Emery Mine and is therefore inadequate. A deficiency concerning reclamation has been written by another reviewer under Reclamation Plan, Revegetation, R645-301-340.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General

Page 11, Chapter 2 indicates that the 4th East Portal will not be regarded to original contour. The Division understands that there will be slight mounding (1.5 to 2.5 feet) over the area of the box cut due to a 10-15% swell during the process of end dumping over the edge to fill the 70 feet deep box cut (page 15, Chapter III). The application further indicates that this will provide the required compaction for the fill. The two ideas seem to be opposing. In addition the Division does not agree with compaction by free fall.

Berms will contain material to be used as fill

Six inches of topsoil will be applied to the regarded stream channel to bring the channel to approximate original contour.

Findings:

The information provided does not meet the minimum required for Reclamation Backfilling and Grading. The Permittee must submit the following, prior to approval, in accordance with:

R645-301-553, The method of compaction of the excavated material into the box cut must be described, compaction by free fall is not acceptable.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Redistribution

In-place topsoil stored beneath the excavated material will be sampled and analyzed during final reclamation. And the soil will be loosened. The plan must describe what analyses will be conducted and for what purpose and what equipment will be used to loosen the compacted in place topsoil.

Stored topsoil will be replaced in a layer 6 inches deep over the site. The site will be seeded with the mixture described on page VIII.C.4. The Division calculates that 13,000 cu yds replaced over 8 acres will result in a foot of topsoil replacement.

Findings:

The information provided does not meet the minimum required for Reclamation Topsoil and Subsoil. The Permittee must submit the following, prior to approval, in accordance with:

R645-301-240, -234.220, The plan must explain the purpose and describe what analyses will be conducted on the in-place stored topsoil and what equipment will be used to loosen the compacted in place topsoil.

R645-301-242.110, The plan should calculate the replacement of topsoil to those areas where topsoil was removed, not the entire site.

CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

General

The Borehole site and the Flume site were reclaimed in 1984. Mulching appears to have been one of the treatments. The last evaluation of the site is in the 1991 Annual report. The most frequently encountered species at the Flume site were *Atriplex canescens* (Four Wing Saltbush) and *Salsola kali* (Russian Thistle).

According to the 1988 Annual Report, mat saltbush was transplanted to the Borehole site site in 1987. The most recent monitoring of the Borehole site (1990) indicates that of the three of the twenty mat saltbush transplants survived. Species most frequently encountered at the Borehole site were *Bouteloua gracilis* (Blue Grama); *Atriplex sp.*; and *Halogeton glomeratus*.

The 1990 Annual report indicates that the Borehole Pump #3 and Sedimentation Pond #6 were built in the spring of 1989 and were seeded after construction without mulching. The initial seeding was unsuccessful. The areas were reseeded in October of 1991. As described in the 1991 Annual report, the following steps were taken in reseeding the topsoil piles and pipeline right of way:

- creation of depressions 4 – 5 feet square and six inches deep;
- discing the soil;
- seeding and mulching the soil by hand;
- then re-discing to crimp the 2 Tons/ac native hay mulch.

The reseeded topsoil piles were evaluated in November 1993 by Paul Baker, Reclamation Biologist for the Division:

> *Best growth on all three piles is on the top where it is relatively flat. There is also a limited amount of growth in the gouges that were made on the sides of the slopes. Even though some plants appear to have become established, plant density is still low...Disturbance of the piles has led to growth of more halogeton and kochia than was present in 1991. The native grasses have not grown sufficiently that they can be identified...Shrubs that I found are winterfat, shadscale, and fourwing saltbush. Winterfat was by far the most prevalent of the shrubs. I did not see any seeded forbs...*

Findings:

The information provided in the application does not advance the Permittee's understanding of reclamation procedures for the Emery Mine and is therefore inadequate. A deficiency concerning reclamation has been written by another reviewer under Reclamation Plan, Revegetation, R645-301-340.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

The plan describes ripping the graded surface and applying seed and mulch to topsoiled areas. The plan should describe wind erosion control during plant establishment and attempts to re-establish cryptogams to the soil surface.

Findings:

The information provided is not adequate for the purposes of Reclamation Stabilization of Surface Areas. The Permittee must submit the following, prior to approval, in accordance with:

R645-301-244, The plan should describe wind erosion control during plant establishment and provide a method using the use of the best technology available to re-establish cryptogams to the soil surface.

RECOMMENDATIONS:

The Division should receive the requested information prior to approval of mine operations at the 4th East Portal.